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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,672

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YAMA:130

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EXAMINER

PAUL, DISLER

ART UNIT

PAPER NUMBER

2615

MAIL DATE

DELIVERY MODE

10/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/584,672

Applicant(s)

KONAGAI ET AL.

Examiner

Disler Paul

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/4/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 5-7,10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hilbert (US 3,772,479).

Re claim 5, Hilbert disclose of the audio output apparatus comprising: a measuring unit that measures levels of a plurality of inputted sound signals (fig.1-2 (18)); a compression unit that compresses a plurality of dynamic ranges of the sound signals to a predetermined value or below based on the levels measured by the measuring unit and outputs a plurality of sound signals after the dynamic ranges are compressed (fig.2 (112); col.3 line 19-52/gain varies in accord to input/out ratio.); and an array speaker unit which emits a plurality of sounds in accordance with the plurality of the sound signals outputted from the compression unit in different directivities respectively (fig.3; col.4 line 15-25).

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RE claim 6, Hilbert disclose of the audio output apparatus comprising (fig.1-3): a frequency control unit that limits or emphasizes frequency bands of a plurality of inputted sound signals (fig.1-5 wt (12); col.2 line 38-42; line 47-51); and an array speaker unit which emits a plurality of sounds in accordance with the plurality of the sound signals outputted from the frequency control unit in different directivities respectively (fig.1-5 wt (16)).

Re claim 7, Hilbert disclose of the audio output apparatus comprising: a measuring circuit which measures levels of a plurality of inputted sound signals (fig.1-3 (18,118)); a gain control circuit which refers the levels measured by the measuring circuit and sets a gain coefficient to each of the sound signals (fig.1-3 wt (12,112)); a sound level adjusting circuit which adjusts the levels of the sound signals based on the set gain coefficient (fig.1-3 wt (114,14); col. 2 line 46-49); and an array speaker unit to which a plurality of sound signals adjusted at the level is inputted and which emits a plurality of sounds in accordance with the plurality of the sound signals in different directivities respectively (fig.1-3 wt (16), speakers outputted at different positions).

RE claim 10, the audio output apparatus according to claim 7, wherein the gain control unit sets the gain coefficient so that dynamic ranges of the plurality of sound signals inputted to the array

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speaker unit is made to have a predetermined value (col.2 line 38-42/value to be proportionaal to amplitude of input signals).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4,8-9,11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilbert (3,772,479) and Yeap (4,118,601).

Re claim 1, Hilbert discloser of the audio output (fig.1-5) apparatus comprising: a measuring unit that measures levels of a plurality of inputted sound signals (fig.1-3 (18,120); col.2 line 25-30); a sound level adjusting unit that adjusts gains based on the levels measured by the measuring unit and outputs the plurality of sound signals (fig.1-3 (12,112); col.2 line 35-45); and an array speaker unit which emits a plurality of sounds in accordance with the plurality of sound signals outputted from the sound level adjusting

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means in different directivities, respectively (fig.3; col.4 line 15-25).

While, Hilbert disclose of the above with outputting the plurality of signal based on certain ratio formula, He fail to disclose of the specific wherein the outputting of the plurality of the sound signals in equal magnitudes. However, Yeap disclose of a system of sound equalization wherein the concept of outputting of the plurality of the sound signals in equal magnitudes (fig.2 wt (40,42); col.4 line 5-17) for the purpose of preventing the resonant conditions from suppressing sound frequencies generated. Thus, taking the combined teaching of Hilbert and now Yeap as whole, it would have been obvious for one of the ordinary skill in the art to have incorporated the outputting of the plurality of the sound signals in equal magnitudes for the purpose of preventing the resonant conditions from suppressing sound frequencies generated.

Re claim 4 has been analyzed and rejected with respect to claim 1 above.

Re claim 2, the audio output apparatus according to claim 1, However, the combined teaching of Hilbert and now Yeap as whole, fail

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to teach of the wherein: the measuring unit separates the plurality of the sound signals into a plurality of frequency bands to measure levels, and the sound level adjusting unit assigns weights on the measured levels of the frequency bands with a predetermined weight for each of the frequency bands, adjusts the gains based on the weighted levels of the individual frequency bands, and outputs the plurality of the sound signals in equal magnitudes. However, Yeap disclose of a system wherein the measuring unit separates the plurality of the sound signals into a plurality of frequency bands to measure levels, and the sound level adjusting unit assigns weights on the measured levels of the frequency bands with a predetermined weight for each of the frequency bands, adjusts the gains based on the weighted levels of the individual frequency bands, and outputs the plurality of the sound signals in equal magnitudes (fig.2 (40,42); col.4 line 1-16/ all the channels (a,b,c) are to be adjusted at same weight with individualized frequency bands) for the purpose of creating desired sound perception of room effect. Thus, taking the combined teaching of Hilbert and now Yeap as whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have incorporated the measuring unit separates the plurality of the sound signals into a plurality of frequency bands to measure levels, and the sound level adjusting unit assigns weights on the measured levels of the frequency bands with a predetermined weight for each of the frequency bands, adjusts the gains based on the weighted levels of the individual frequency bands, and outputs the plurality of the sound signals in

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equal magnitudes for the purpose of creating desired sound perception of room effect.

Re claim 3 has been analyzed and rejected with respect to claim 2 above.

Re claim 8, the audio output apparatus according to claim 7, However, Hilbert fail to disclose of the wherein the gain control unit sets the gain coefficient so that the plurality of the levels of the sound signals inputted is nearly equal to each other. However, Yeap disclose of a system wherein the gain control unit sets the gain coefficient so that the plurality of the levels of the sound signals inputted is nearly equal to each other (fig.2 wt (40,42,48); col.4 line 5-17) for the purpose of preventing the resonant conditions from suppressing sound frequencies generated. Thus, taking the combined teaching of Hilbert and now Yeap as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention, to have incorporated the gain control unit sets the gain coefficient so that the plurality of the levels of the sound signals inputted is nearly equal to each other for the purpose of preventing the resonant conditions from suppressing sound frequencies generated.

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Re claim 9, the audio output apparatus according to claim 7, However, the combined teaching of Hilbert and now Yeap as a whole, is silent in regard of the wherein the gain control unit includes an offset generating circuit which adds a certain amount of an offset amount to at least one level among the levels measured by the measuring circuit. However, Yeap disclose of the plurality of signal channels and comparing the signals and adjusting so that all the channels may be equals so that to compensate for the channels imbalance (col.4 line 1-18; fig.2 wt (42,46,48)), thus with the above disclosure it is inherent of the existence properties of having such gain offset for compensating for channels input signals imbalance.

Re claim 11, the audio output apparatus according to claim 7, further comprising a band pass filter to which a plurality of sound signals is inputted and which limits a frequency band of the sound signal (Yeap, fig.2 (40,42)).

Re claim 12, the audio output apparatus according to claim 11, wherein the sound signal limited in the frequency band by the band pass filter is outputted to the measuring circuit (Yeap, fig.2 wt (40,46,48)).

Re claim 13, the audio output apparatus according to claim 11, wherein the sound signal limited in the frequency band by the band

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pass filter is outputted to the sound level adjusting circuit (fig.2 wt (40,42); col.3 line 5-10).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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